

***PRELIMINARY SPECIFICATION FOR  
ANDREW TRASAR<sup>®</sup> HORIZONTALLY POLARIZED  
DUAL ADJACENT CHANNEL COAXIAL SLOTTED  
ARRAY ANTENNA***

*Prepared for  
KTEJ-TV & DT NTSC Channel 19 & DTV Channel 20 Jonesboro, AR  
April 23, 2002*

***ANTENNA TYPE:  
ATW27H5-HTOL-19H***

***SPECIFICATION NO :  
KO041802-1104***



**Andrew Corporation**  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

**KO041802-1104**

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**PRELIMINARY SPECIFICATION FOR  
ANDREW TRASAR<sup>®</sup> HORIZONTALLY POLARIZED  
DUAL ADJACENT CHANNEL COAXIAL SLOTTED  
ARRAY ANTENNA**

**ELECTRICAL CHARACTERISTICS:**

CHANNEL :	NTSC :	19
	DTV :	20
FREQUENCY RANGE :	NTSC :	500-506 MHz
	DTV :	506-512 MHz
AZIMUTH PATTERN NUMBER :		ATW-O
ELEVATION PATTERN NUMBER :	NTSC :	ATW27H5H
	DTV :	ATW27H3H
AZIMUTH DIRECTIVITY :		1.00 (0.00 dB)
ELEVATION DIRECTIVITY :		27.00 (14.31 dB)
PEAK POWER GAIN :		27.00 (14.31 dB)
GAIN AT HORIZONTAL :	NTSC :	6.72 (8.28 dB)
	DTV :	16.26 (12.11 dB)
ELECTRICAL BEAM TILT :	NTSC :	1.25 degrees
	DTV :	0.75 degrees
INPUT POWER REQUIRED :	NTSC :	45.56 (16.59 dBk)
	DTV :	2.00 (3.01 dBk)
INPUT TYPE :		6 1/8 75 Ohm, EIA**
VSWR (MAXIMUM) :	NTSC :	1.05 Visual +0.5MHz 1.08 Color Subcarrier 1.10 Remainder of Channel
	DTV :	1.10 Across 6MHz Channel

**\*\* NOTE: 6 1/8-75 Ohm SWR Marman Flange Adapter is quoted separately.**



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# **PRELIMINARY SPECIFICATION FOR ANDREW TRASAR<sup>®</sup> HORIZONTALLY POLARIZED DUAL ADJACENT CHANNEL COAXIAL SLOTTED ARRAY ANTENNA**

## **MECHANICAL CHARACTERISTICS:**

### **MOUNTING CONFIGURATION:**

*\*(Tower Interface supplied and installed by others)*

HEIGHT OF ANTENNA :	61.46 feet
HEIGHT OF CENTER OF RADIATION (B) :	30.73 feet
OVERALL HEIGHT (A) : (Includes two 3-foot Lightning Rods)	64.46 feet
DEICING :	Fiberglass Radome Enclosed
RADOME DIAMETER (C):	18.4 inches, OD
RADOME COLOR :	AVIATION ORANGE (Standard)
CLIMBING DEVICE :	Galvanized Climbing Pole
CALCULATED WEIGHT :	11,435.00 lbs.
WINDLOAD DATA :	SHEAR : 2,135.00 lbs.
	OVERTURNING MOMENT: 66,915.00 lbs.-ft
ANTENNA AREA :	CaAc : 65.40 square feet
	Ac : 110.80 square feet
MOUNTING FLANGE :	BOLT CIRCLE : 24 inches
	BOLT DIAMETER : 1.25 inches
	NUMBER OF BOLTS : 20

***This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three translational and three rotational degrees of freedom.***

***1*** Calculated weight is based on the **PRELIMINARY** design of the antenna. The actual weight of the antenna will be within  $\pm 10\%$  of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna. This figure is for the antenna only and does not include the antenna input section.

***2*** Based on a wind speed of **70 miles per hour (MPH)**, a height above average terrain (**HAAT**) of **987 feet**, and a height above ground level (**HAGL**) of **936 feet** per **EIA/TIA-222-F**.

**NOTE:** Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.



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# Broadcast Antenna System

## Power Analysis

**KTEJ-TV/DT**  
**Jonesboro, AR**  
**ATW27H3-HTOL-19H**

**Channel 19**

### ANTENNA PARAMETERS :

#### Azimuth Directivity :

Hor. Pol : 1.00

dBd : 0.00

#### Elevation Directivity :

Hor. Pol : 27.00

dBd : 14.31

#### ERP :

kW : 1230.00

dBk : 30.90

#### POWER GAIN :

Ratio : 27.00

dBd : 14.31

#### ANTENNA INPUT :

kW : 45.56

dBk : 16.59

### TRANSMISSION LINE :

#### VERTICAL RUN :

Type: 6 1/8-75 Ohm SWR Rigid Line

Length, ft. : 850

Attenuation , dB/100 ft: 0.102

#### HORIZONTAL RUN :

Type: 6 1/8-75 Ohm SWR Rigid Line

Length, ft. : 100

Attenuation , dB/100 ft: 0.102

#### LINE LOSS :

kW : 11.39

dB : 0.97

Efficiency : 80.00%

### TRANSMITTER POWER :

kW : 56.94

dBk : 17.55



# Broadcast Antenna System

## Power Analysis

**KTEJ-TV/DT**  
**Jonesboro, AR**  
**ATW27H3-HTOL-19H**

**Channel 20**

### ANTENNA PARAMETERS :

#### Azimuth Directivity :

Hor. Pol : 1.00

dBd : 0.00

#### Elevation Directivity :

Hor. Pol : 27.00

dBd : 14.31

#### ERP :

kW : 50.00

dBd : 16.99

#### POWER GAIN :

Ratio : 25.00

dBd : 13.98

#### ANTENNA INPUT :

kW : 2.00

dBd : 3.01

### TRANSMISSION LINE :

#### VERTICAL RUN :

Type: 6 1/8-75 Ohm SWR Rigid Line

Length, ft. : 850

Attenuation , dB/100 ft: 0.103

#### HORIZONTAL RUN :

Type: 6 1/8-75 Ohm SWR Rigid Line

Length, ft. : 100

Attenuation , dB/100 ft: 0.103

#### LINE LOSS :

kW : 0.51

dBd : 0.98

Efficiency : 79.83%

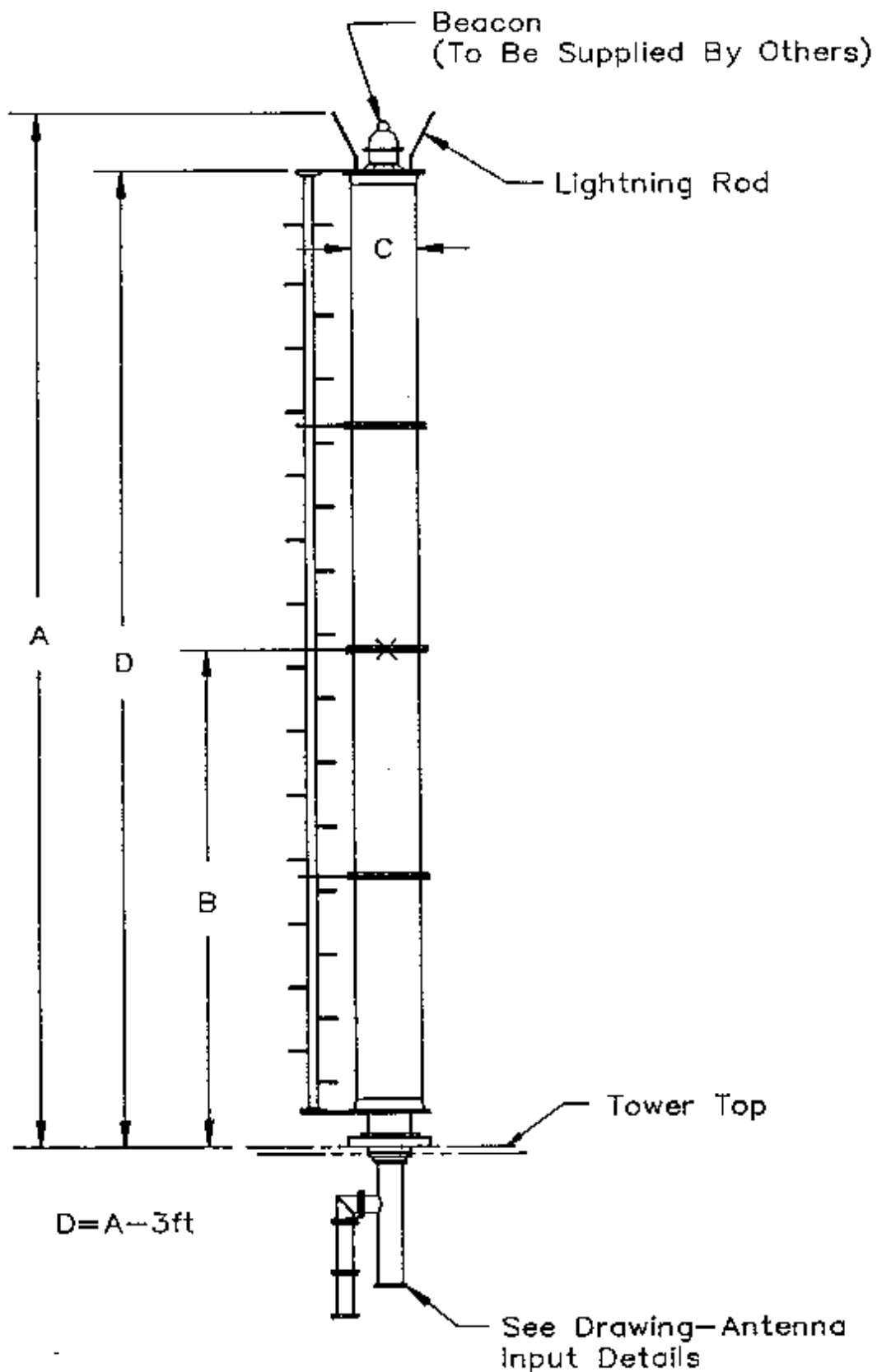
#### TRANSMITTER POWER :

kW : 2.51

dBk : 3.99



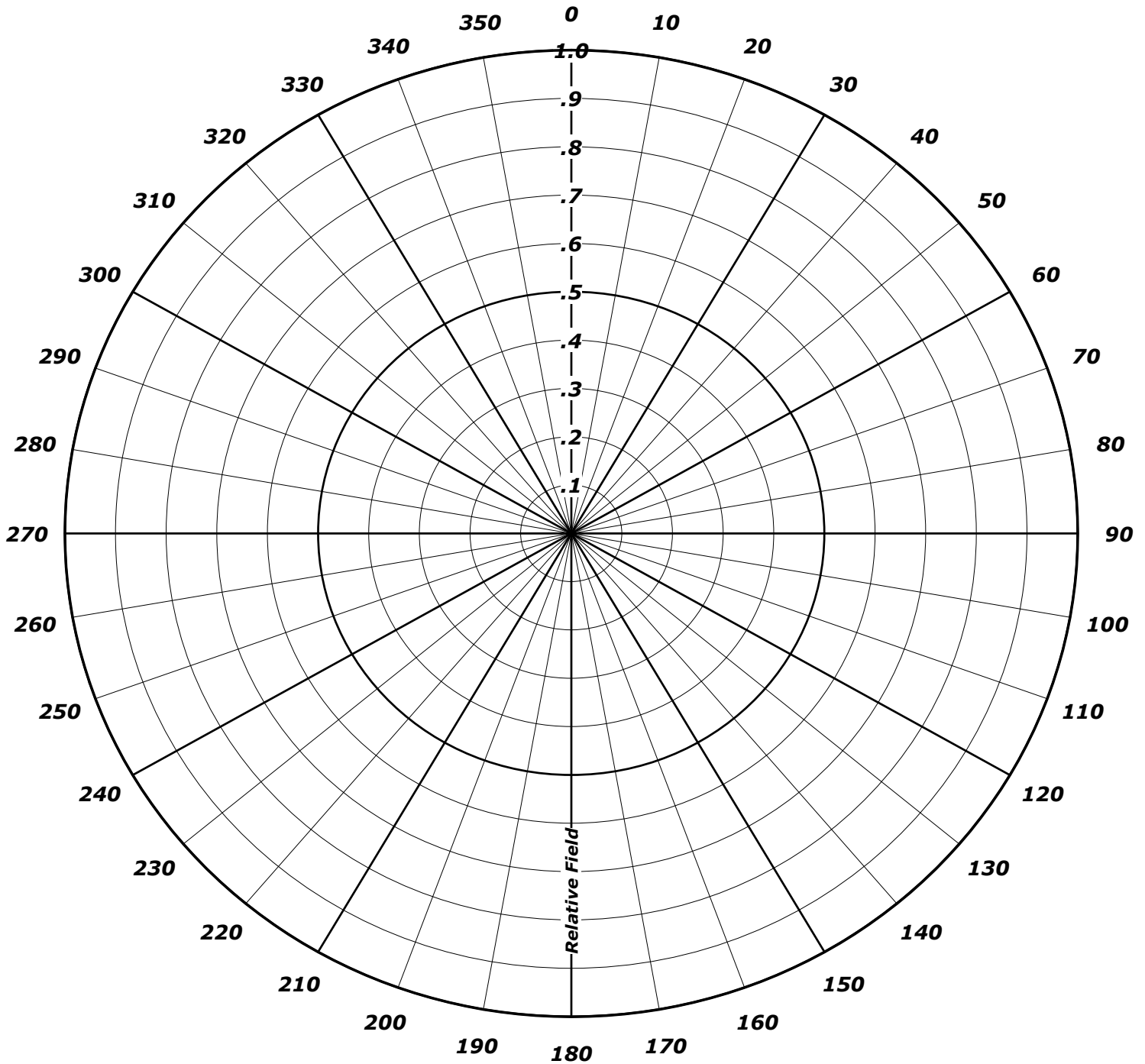
TYPICAL MOUNTING CONFIGURATION SHOWN. ACTUAL CONFIGURATION MAY VARY.



**ANDREW**  
**AZIMUTH PATTERN**

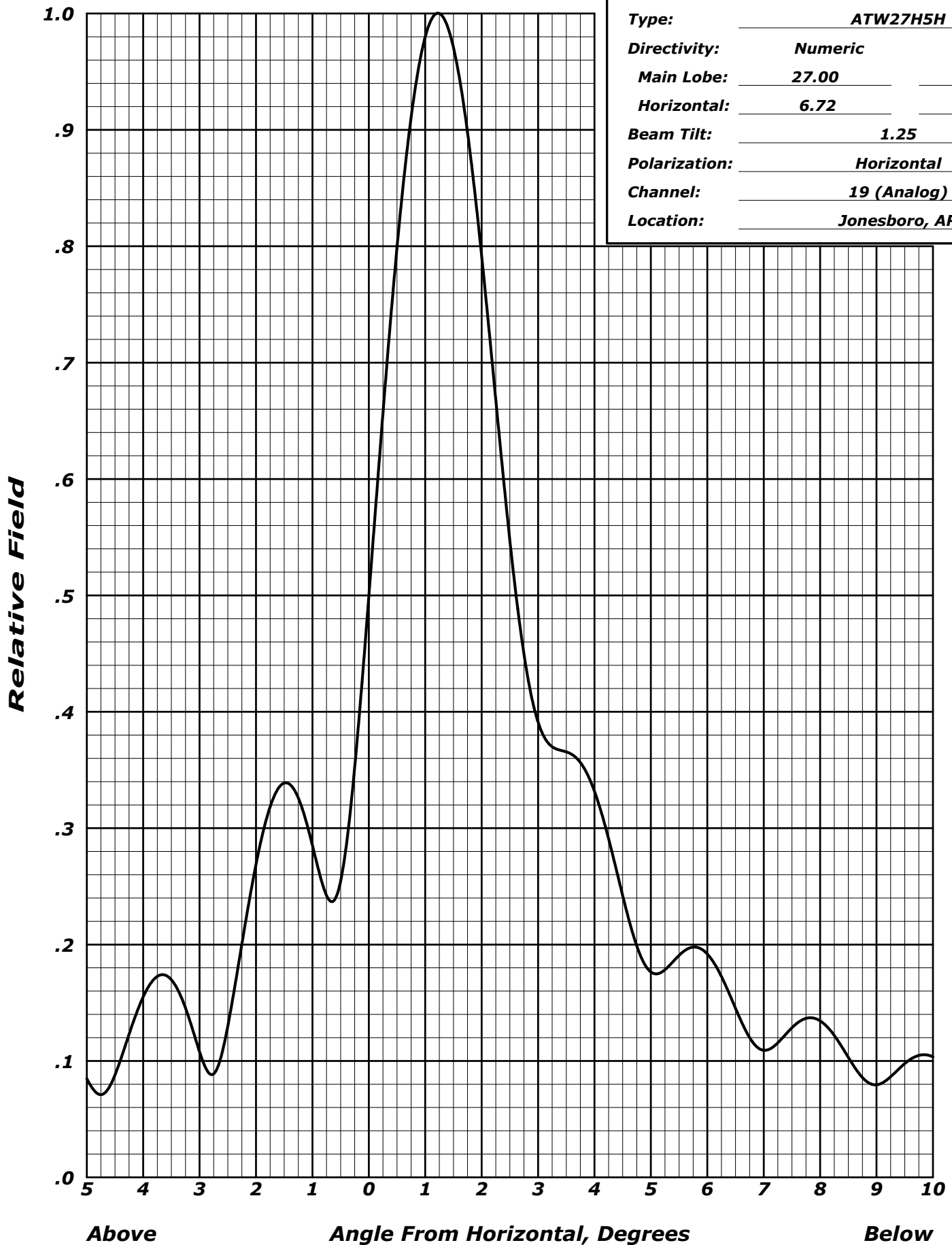
Type: ATW-O

	Numeric	dBd
Directivity:	<u>1.000</u>	<u>( 0.00)</u>
Peak(s) At:	<u></u>	
Polarization:	<u>Horizontal</u>	
Channel:	<u>19 (Analog) / 20 (Digital)</u>	
Location:	<u>Chisolm, MN</u>	



**ANDREW**  
**ELEVATION PATTERN**

Type:	ATW27H5H	
Directivity:	Numeric	dBd
Main Lobe:	27.00	(14.31)
Horizontal:	6.72	( 8.28)
Beam Tilt:	1.25	
Polarization:	Horizontal	
Channel:	19 (Analog)	
Location:	Jonesboro, AR	







## TABULATED DATA FOR ELEVATION PATTERN

TYPE : ATW27H5H

Angle Field    dB -5 To 10 In 0.25 Increments	Angle Field    dB 10 To 90 In 0.5 Increments	Angle Field    dB	Angle Field    dB
-5.00 0.085 -21.43	8.75 0.086 -21.34	35.00 0.029 -30.62	62.50 0.037 -28.67
-4.75 0.071 -22.97	9.00 0.080 -21.99	35.50 0.035 -29.08	63.00 0.037 -28.61
-4.50 0.088 -21.11	9.25 0.086 -21.26	36.00 0.032 -29.93	63.50 0.034 -29.45
-4.25 0.123 -18.21	9.50 0.098 -20.20	36.50 0.023 -32.74	64.00 0.028 -31.18
-4.00 0.155 -16.19	9.75 0.105 -19.60	37.00 0.022 -33.24	64.50 0.021 -33.60
-3.75 0.173 -15.26	10.00 0.104 -19.70	37.50 0.030 -30.46	65.00 0.018 -35.09
-3.50 0.170 -15.40	10.50 0.079 -22.00	38.00 0.034 -29.27	65.50 0.021 -33.60
-3.25 0.145 -16.74	11.00 0.062 -24.10	38.50 0.030 -30.35	66.00 0.028 -31.20
-3.00 0.108 -19.34	11.50 0.079 -22.04	39.00 0.022 -33.19	66.50 0.034 -29.43
-2.75 0.089 -21.02	12.00 0.085 -21.45	39.50 0.021 -33.40	67.00 0.038 -28.44
-2.50 0.130 -17.73	12.50 0.065 -23.72	40.00 0.030 -30.58	67.50 0.039 -28.16
-2.25 0.201 -13.95	13.00 0.052 -25.74	40.50 0.034 -29.31	68.00 0.037 -28.54
-2.00 0.269 -11.41	13.50 0.067 -23.51	41.00 0.031 -30.19	68.50 0.033 -29.60
-1.75 0.318 -9.94	14.00 0.072 -22.80	41.50 0.023 -32.86	69.00 0.027 -31.37
-1.50 0.339 -9.40	14.50 0.056 -24.99	42.00 0.020 -33.89	69.50 0.020 -33.82
-1.25 0.326 -9.74	15.00 0.044 -27.16	42.50 0.027 -31.22	70.00 0.016 -36.09
-1.00 0.285 -10.89	15.50 0.057 -24.89	43.00 0.033 -29.54	70.50 0.016 -35.80
-0.75 0.242 -12.31	16.00 0.063 -23.98	43.50 0.032 -29.83	71.00 0.021 -33.46
-0.50 0.255 -11.89	16.50 0.050 -26.00	44.00 0.025 -31.99	71.50 0.027 -31.26
-0.25 0.353 -9.05	17.00 0.038 -28.42	44.50 0.019 -34.24	72.00 0.033 -29.68
0.00 0.499 -6.03	17.50 0.049 -26.18	45.00 0.024 -32.45	72.50 0.037 -28.69
0.25 0.656 -3.66	18.00 0.056 -24.97	45.50 0.031 -30.11	73.00 0.039 -28.20
0.50 0.799 -1.95	18.50 0.046 -26.68	46.00 0.034 -29.50	73.50 0.039 -28.13
0.75 0.911 -0.81	19.00 0.034 -29.29	46.50 0.029 -30.71	74.00 0.038 -28.46
1.00 0.980 -0.18	19.50 0.043 -27.31	47.00 0.021 -33.36	74.50 0.035 -29.18
1.25 1.000 -0.00	20.00 0.051 -25.77	47.50 0.020 -34.17	75.00 0.030 -30.32
1.50 0.971 -0.26	20.50 0.044 -27.10	48.00 0.026 -31.55	75.50 0.025 -31.93
1.75 0.898 -0.94	21.00 0.031 -30.04	48.50 0.033 -29.68	76.00 0.020 -34.11
2.00 0.792 -2.03	21.50 0.037 -28.60	49.00 0.034 -29.46	76.50 0.014 -36.97
2.25 0.668 -3.50	22.00 0.047 -26.56	49.50 0.029 -30.90	77.00 0.010 -40.25
2.50 0.547 -5.24	22.50 0.043 -27.30	50.00 0.021 -33.53	77.50 0.008 -41.54
2.75 0.450 -6.94	23.00 0.030 -30.35	50.50 0.020 -34.18	78.00 0.011 -39.32
3.00 0.391 -8.15	23.50 0.031 -30.08	51.00 0.026 -31.67	78.50 0.015 -36.66
3.25 0.370 -8.64	24.00 0.042 -27.50	51.50 0.032 -29.78	79.00 0.019 -34.62
3.50 0.366 -8.74	24.50 0.042 -27.44	52.00 0.034 -29.38	79.50 0.022 -33.16
3.75 0.356 -8.96	25.00 0.032 -30.02	52.50 0.030 -30.48	80.00 0.025 -32.14
4.00 0.332 -9.59	25.50 0.027 -31.33	53.00 0.023 -32.87	80.50 0.027 -31.46
4.25 0.291 -10.72	26.00 0.037 -28.61	53.50 0.019 -34.57	81.00 0.028 -31.03
4.50 0.242 -12.32	26.50 0.041 -27.64	54.00 0.023 -32.70	81.50 0.029 -30.83
4.75 0.199 -14.03	27.00 0.034 -29.41	54.50 0.030 -30.35	82.00 0.029 -30.80
5.00 0.176 -15.07	27.50 0.025 -32.12	55.00 0.035 -29.22	82.50 0.028 -30.94
5.25 0.178 -14.97	28.00 0.031 -30.16	55.50 0.034 -29.43	83.00 0.027 -31.22
5.50 0.191 -14.39	28.50 0.039 -28.18	56.00 0.028 -30.93	83.50 0.026 -31.62
5.75 0.198 -14.07	29.00 0.036 -28.83	56.50 0.021 -33.44	84.00 0.025 -32.15
6.00 0.192 -14.34	29.50 0.026 -31.76	57.00 0.019 -34.65	84.50 0.023 -32.80
6.25 0.173 -15.26	30.00 0.025 -32.09	57.50 0.024 -32.55	85.00 0.021 -33.56
6.50 0.145 -16.76	30.50 0.034 -29.27	58.00 0.031 -30.26	85.50 0.019 -34.45
6.75 0.120 -18.41	31.00 0.037 -28.53	58.50 0.035 -29.09	86.00 0.017 -35.48
7.00 0.109 -19.24	31.50 0.030 -30.38	59.00 0.035 -29.05	86.50 0.015 -36.66
7.25 0.116 -18.74	32.00 0.022 -33.14	59.50 0.031 -30.13	87.00 0.013 -38.03
7.50 0.129 -17.82	32.50 0.027 -31.25	60.00 0.024 -32.26	87.50 0.010 -39.65
7.75 0.137 -17.29	33.00 0.035 -29.05	60.50 0.019 -34.55	88.00 0.008 -41.63
8.00 0.134 -17.43	33.50 0.034 -29.29	61.00 0.020 -34.09	88.50 0.006 -44.17
8.25 0.122 -18.28	34.00 0.026 -31.86	61.50 0.026 -31.62	89.00 0.004 -47.72
8.50 0.103 -19.74	34.50 0.022 -33.34	62.00 0.033 -29.66	89.50 0.002 -53.75



# ANDREW

## ELEVATION PATTERN

Type: ATW27H3H

Directivity: Numeric dBd

Main Lobe: 27.00 (14.31)

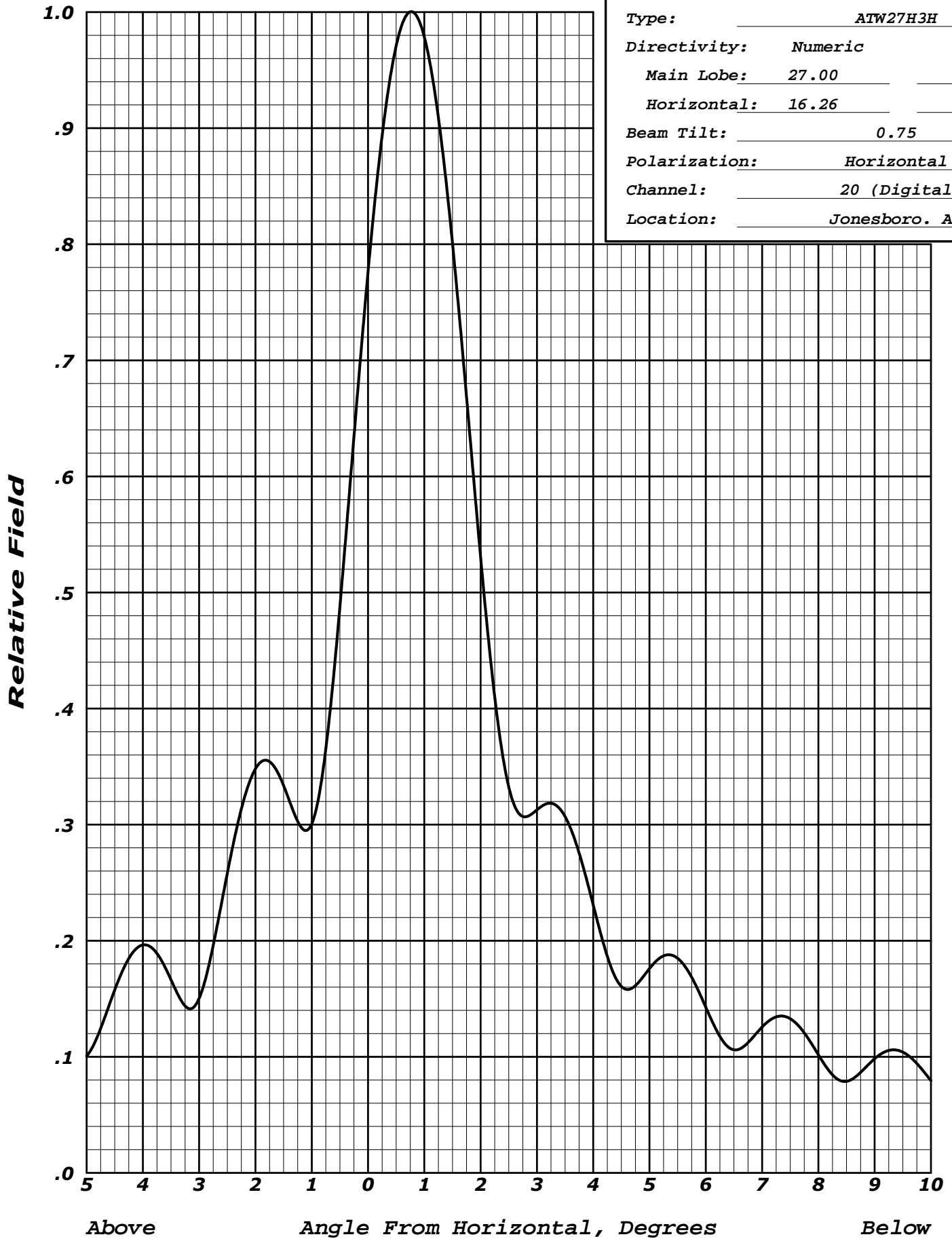
Horizontal: 16.26 (12.11)

Beam Tilt: 0.75

Polarization: Horizontal

Channel: 20 (Digital)

Location: Jonesboro. AR





## TABULATED DATA FOR ELEVATION PATTERN

TYPE : ATW27H3H

Angle Field    dB -5 To 10 In 0.25 Increments	Angle Field    dB 10 To 90 In 0.5 Increments	Angle Field    dB	Angle Field    dB
-5.00 0.101 -19.94	8.75 0.087 -21.25	35.00 0.036 -28.81	62.50 0.030 -30.45
-4.75 0.124 -18.10	9.00 0.098 -20.14	35.50 0.028 -31.05	63.00 0.028 -31.07
-4.50 0.158 -16.05	9.25 0.105 -19.54	36.00 0.025 -32.10	63.50 0.032 -29.97
-4.25 0.185 -14.67	9.50 0.104 -19.66	36.50 0.032 -29.86	64.00 0.038 -28.32
-4.00 0.196 -14.14	9.75 0.094 -20.52	37.00 0.037 -28.55	64.50 0.044 -27.07
-3.75 0.189 -14.47	10.00 0.079 -21.99	37.50 0.034 -29.31	65.00 0.048 -26.46
-3.50 0.166 -15.58	10.50 0.064 -23.89	38.00 0.026 -31.64	65.50 0.047 -26.49
-3.25 0.144 -16.85	11.00 0.081 -21.82	38.50 0.025 -32.03	66.00 0.044 -27.14
-3.00 0.150 -16.46	11.50 0.085 -21.41	39.00 0.033 -29.71	66.50 0.038 -28.31
-2.75 0.196 -14.15	12.00 0.065 -23.76	39.50 0.037 -28.57	67.00 0.033 -29.70
-2.50 0.258 -11.77	12.50 0.054 -25.32	40.00 0.034 -29.39	67.50 0.030 -30.52
-2.25 0.314 -10.07	13.00 0.070 -23.14	40.50 0.026 -31.68	68.00 0.032 -30.02
-2.00 0.348 -9.17	13.50 0.073 -22.78	41.00 0.025 -32.19	68.50 0.037 -28.65
-1.75 0.354 -9.01	14.00 0.055 -25.18	41.50 0.032 -29.94	69.00 0.043 -27.26
-1.50 0.334 -9.53	14.50 0.047 -26.60	42.00 0.037 -28.63	69.50 0.049 -26.25
-1.25 0.303 -10.37	15.00 0.061 -24.30	42.50 0.035 -29.15	70.00 0.052 -25.68
-1.00 0.301 -10.44	15.50 0.064 -23.87	43.00 0.027 -31.24	70.50 0.053 -25.54
-0.75 0.365 -8.75	16.00 0.049 -26.13	43.50 0.024 -32.57	71.00 0.051 -25.81
-0.50 0.488 -6.24	16.50 0.042 -27.48	44.00 0.029 -30.71	71.50 0.048 -26.46
-0.25 0.634 -3.96	17.00 0.055 -25.23	44.50 0.036 -28.98	72.00 0.042 -27.43
0.00 0.776 -2.20	17.50 0.058 -24.72	45.00 0.036 -28.87	72.50 0.037 -28.61
0.25 0.893 -0.98	18.00 0.045 -26.89	45.50 0.030 -30.35	73.00 0.033 -29.66
0.50 0.971 -0.26	18.50 0.038 -28.46	46.00 0.024 -32.30	73.50 0.031 -30.12
0.75 1.000 0.00	19.00 0.049 -26.23	46.50 0.026 -31.59	74.00 0.033 -29.70
1.00 0.979 -0.19	19.50 0.053 -25.52	47.00 0.034 -29.49	74.50 0.037 -28.70
1.25 0.909 -0.83	20.00 0.042 -27.52	47.50 0.038 -28.51	75.00 0.042 -27.57
1.50 0.801 -1.93	20.50 0.034 -29.46	48.00 0.035 -29.05	75.50 0.047 -26.58
1.75 0.668 -3.50	21.00 0.044 -27.19	48.50 0.029 -30.87	76.00 0.051 -25.80
2.00 0.530 -5.51	21.50 0.050 -26.06	49.00 0.024 -32.29	76.50 0.055 -25.27
2.25 0.410 -7.74	22.00 0.041 -27.64	49.50 0.028 -30.94	77.00 0.057 -24.95
2.50 0.332 -9.56	22.50 0.031 -30.05	50.00 0.035 -29.03	77.50 0.057 -24.83
2.75 0.307 -10.26	23.00 0.039 -28.27	50.50 0.039 -28.27	78.00 0.057 -24.89
3.00 0.313 -10.10	23.50 0.046 -26.69	51.00 0.036 -28.87	78.50 0.056 -25.11
3.25 0.318 -9.94	24.00 0.041 -27.72	51.50 0.029 -30.64	79.00 0.053 -25.47
3.50 0.307 -10.26	24.50 0.030 -30.36	52.00 0.025 -32.19	79.50 0.050 -25.96
3.75 0.276 -11.20	25.00 0.034 -29.39	52.50 0.028 -31.15	80.00 0.047 -26.55
4.00 0.231 -12.73	25.50 0.043 -27.29	53.00 0.035 -29.17	80.50 0.043 -27.24
4.25 0.187 -14.58	26.00 0.042 -27.59	53.50 0.039 -28.09	81.00 0.040 -27.99
4.50 0.161 -15.88	26.50 0.031 -30.05	54.00 0.039 -28.22	81.50 0.036 -28.78
4.75 0.161 -15.85	27.00 0.030 -30.52	54.50 0.034 -29.49	82.00 0.033 -29.60
5.00 0.176 -15.09	27.50 0.039 -28.15	55.00 0.027 -31.33	82.50 0.030 -30.40
5.25 0.187 -14.56	28.00 0.042 -27.59	55.50 0.026 -31.76	83.00 0.028 -31.18
5.50 0.185 -14.66	28.50 0.034 -29.46	56.00 0.031 -30.07	83.50 0.025 -31.92
5.75 0.168 -15.47	29.00 0.027 -31.52	56.50 0.038 -28.38	84.00 0.023 -32.62
6.00 0.143 -16.91	29.50 0.033 -29.55	57.00 0.042 -27.62	84.50 0.022 -33.29
6.25 0.118 -18.59	30.00 0.040 -27.99	57.50 0.040 -27.89	85.00 0.020 -33.97
6.50 0.106 -19.49	30.50 0.036 -28.82	58.00 0.035 -29.12	85.50 0.018 -34.69
6.75 0.112 -19.00	31.00 0.027 -31.39	58.50 0.029 -30.86	86.00 0.017 -35.48
7.00 0.126 -18.02	31.50 0.028 -31.14	59.00 0.027 -31.53	86.50 0.015 -36.41
7.25 0.134 -17.43	32.00 0.036 -28.76	59.50 0.031 -30.16	87.00 0.013 -37.52
7.50 0.133 -17.53	32.50 0.039 -28.29	60.00 0.038 -28.39	87.50 0.011 -38.90
7.75 0.121 -18.37	33.00 0.031 -30.09	60.50 0.043 -27.28	88.00 0.009 -40.66
8.00 0.102 -19.85	33.50 0.025 -32.14	61.00 0.045 -27.01	88.50 0.007 -43.01
8.25 0.085 -21.46	34.00 0.030 -30.32	61.50 0.042 -27.57	89.00 0.005 -46.43
8.50 0.079 -22.06	34.50 0.038 -28.49	62.00 0.036 -28.87	89.50 0.002 -52.39